ISDN Plus
NT-810

www.pharos.com.eg

User’s manual

Index

Introduction

Quest ISDN NT 1 Plus supplies 2-wire bi-directional transferring ability of 2B+D. It also supplied 2 POTS, provides high-quality Internet access and data transmission service and dials up to Internet via ISDN network with a high-speed data rate of 64kbps and 128kbps. It can automatically detect and configure resources, and support current popular Internet access software including Netscape and Internet Explorer. ISDN has a good connection feature and can be connected with many networks such as telephone network, packet switching network, Internet and local area network, etc.

Product Feature

·Power saving enabled sleep state to save power while TE does not work.

·Low power design, satisfies 1.5w and the target of the remote power.

·One analog phone or one ISDN phone can work in the case of power failure.

·Keeps the link status while switching between local power and remote power, and the switching is automatic.

·Has cold start and warm start, and fixed timer and self-adapt timer.

·Supports CAPI 2.0

·Support Reverse Polarity for analog ports (for call metering).

·Accesses 8 terminals in the case of point to multi-points.

·U-interface supports long distance transfer, it possesses strong anti-jamming ability.

·Directly accesses analog services such as ordinary phone,G3 fax, modem, etc.

·Call restriction function.

·Supports supplementary services such as MSN (Multiple Subscriber Number), SUB (sub address), CW (Call Waiting), 3PTY(Three Party Service), etc.

·A or μ law selectable by POTS.

·Supports caller ID,FSK type I or DTMF mode selectable by POTS.

·Very strong compatibility: supports various switchers

·Supports RVS-COM ISDN application packets

·High cost-effective, fast date rate, up to 128kbps for accessing Internet

·Supports all applications used for accessing Internet (www browser, FTP, Email, etc.)

·Uses message driven mechanism, featuring real-time and multi-task.

·Powered by Pharos Firmware which develop, debug and test platform, it has the ability to simulate interactive between command and data in high-layer application and test operation situation for low-layer system.

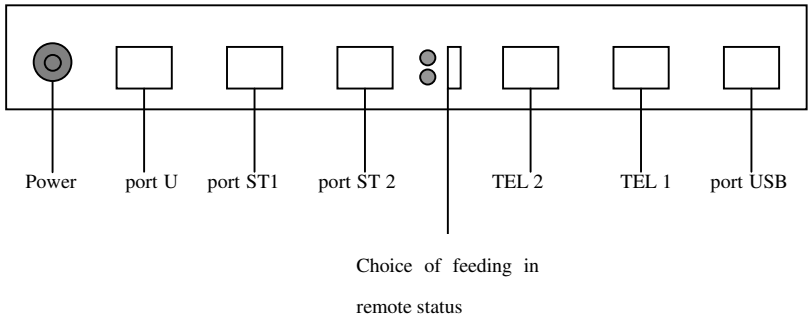
·Complies with international and national standards

·High integrity circuit and stable quality

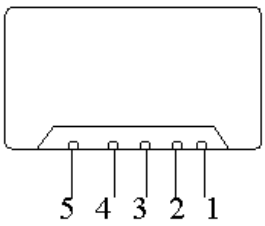
Quest hardware installations

1. Insert the S/T plug of TE1 (eg. ISDN phone) into S/T1 or S/T2, or insert the plug of an analog phone into TEL1 or TEL2.
2. Insert the U-plug into the U-interface embedded in the wall.
3. Switch on the power.
4. Send activation command from TE1 (eg. hook off an ISDN phone) or TA (eg. hook off an analog phone) or from LE (call this ISDN number), now, the status LED flash at 8Hz.
5. After several seconds, the status LED turns ON (U- and S/T- interfaces work normally),or flashes at 1Hz(U-interface works normally, S/T-interface works abnormally),or turns OFF(U-interface works abnormally).

Back connections layout:



Meanings of the LEDs Indicators



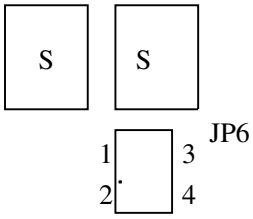
1. Status LED
   OFF: U- and S- interfaces not activated.
   Flashes at 8Hz: Activating the U-interface or U-interface fault.
   Flashes at 1Hz: U-interface activated, S-interface being activated or S-interface fault
   ON: U- and S-interface all activated

2. Remote power LED (R-Power LED)
3. Local power LED (L-Power LED)
   PWR LED Local power (L-Power LED) & Remote power (R-Power LED)
   local power provided: Local power ON, Remote power OFF
   local power not provided:. Local power OFF, Remote power ON

4. TEL LED 1
   OFF: POTS idle.
   Flashes at 8Hz: ringing.
   Flashes at 1Hz: POTS being used.
   ON: talk
5. TEL LED 2 (same as TEL LED 1).

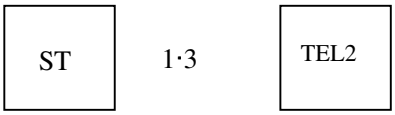
Selection of the terminal resistance

If the 50Ω resistance is needed, you can find JP6 jumper while you open the NT1 plus, short the pin 1-2 and pin 3-4.



Remote power feeding selection

In case of restricted power supply, you can select only one analog phone or one ISDN phone to work by set the jumper back of the device, short 3-4 pin to select one analog phone, or short 1-2 pin to select one ISDN phone.



System Programming

1.System Programming

Hook off any analog phone, you will listen dial tone, then, press the '**' keys, the dial tone disappears, now, dial a digit string started with '*' and ended with '#' to program as listen in the following table.

Function	Usage	Notes
Change Pin Code	*90*old PIN*new PIN* new PIN#	Default Pin '000'
Configure MSN	*91*PIN*MSN#	
Cancel MSN	*91*PIN#	
Configure sub address	*92*PIN*SUB#	initial setup:'1' for POTS 1,'2' for POTS 2
Cancel sub address	*92*PIN#	
Connected Line Identification Presentation	*93*PIN*2#	
Connected Line Identification Restriction	*93*PIN*3#	
Calling Line Identification Presentation	*93*PIN*0#	
Calling Line Identification Restriction	*93*PIN*1#	
A law	*93*PIN*4#	
μ law	*93*PIN*5#	
Configure point to multi-points or extended passive bus	*93*PIN*6#	
Configure short passive bus	*93*PIN*7#	
Reject waiting incoming call while POTS all idle	*93*PIN*8#	
Receive waiting incoming call while POTS all idle	*93*PIN*9#	
Caller ID : FSK type I	*94*PIN*0#	
Caller ID : DTMF	*94*PIN*1#	

Don't add '0' in front of the number of long distance incoming call	*94*PIN*2#	
Add '0' in front of the number of long distance incoming call	*94*PIN*3#	
Enable Reverse Polarity	*94*PIN*4#	
Disable Reverse Polarity	*94*PIN*5#	
Adjust the receiving volume	*95*PIN*0|12|3|4#	0:max,4:min,initial setup 0
Adjust the transmitting volume	*96*PIN*0|12|3|4#	0:max,4:min,initial setup 0
Configure 10 outgoing restricted numbers	*50*PIN*number0# *59*PIN*number9#	number can be partial
Cancel outgoing 10 restricted numbers	*50*PIN# *59*PIN#	
Configure incoming restricted numbers	*40*PIN*number0# *49*PIN*number9#	number can be partial
Cancel incoming restricted numbers	*40*PIN# *49*PIN#	
Configure outgoing emergent numbers	*60*PIN*number0# *69*PIN*number9#	number can be partial
Cancel outgoing emergent numbers	*60*PIN# *69*PIN#	
Configure incoming important numbers	*00*PIN*number0# *09*PIN*number9#	number can be partial
Cancel incoming important numbers	*00*PIN# *09*PIN#	
call restriction mode		
no call restriction	*99*PIN*0#	
outgoing restriction	*99*PIN*1#	numbers configured with 5x can't be called out
incoming restriction	*99*PIN*2#	numbers configured with 4x can't be called in

outgoing and incoming restriction	*99*PIN*3#	numbers configured with 5x can't be called out; numbers configured with 4x can't be called in
all restriction	*99*PIN*4#	numbers configured with 6x and fixed emergent numbers such as 110,112,119,120,122 can be called out; numbers configured with 0x can be called in
Reset data	*99*PIN*9#	Reset

Notes:

1. **In case of remote power, the MSN and SUB will be ignored.**
2. **When a waiting incoming call arrives, if the NT1+ is set to receive it while POTS all idle, the analog phone still ring, otherwise, the analog phone doesn't ring.**
3. **You will hear a confirmation tone if you programming step successfully, otherwise you will hear busy tone.**

2. Intercom

You will listen dial tone while you hook off POTS A, if you press '**' keys, the dial tone will stop. Now, you can dial '#' to call another POTS B, if B is idle, it will ring and you can listen echo tone, you can talk with another people while he hooks off POTS B; if B is in use, you will listen busy tone.

As the B channel is not occupied in case of intercom, it's free using intercom.

3. Call transfer internally

Suppose you (POTS A) are talking with an external user(C), if you press '**' keys, you will listen dial tone and C will listen hold music; then, dial '#', if POTS B is idle, you will listen echo tone and B will ring; the people that hooks off B will talk with C. You will listen confirm tone if you haven't hooked on A while other people hooks off B.

On the course of transferring, you can press '' keys to talk with C again;**

On the course of transferring, if the external user C hooks on, you will listen busy tone and B will stop ringing.

4. 3PTY (Three Party Service)

Suppose you (POTS A) are talking with an external user(B), if you press '**' keys, you will listen dial tone and B will listen hold music; then, dial a number to call another external user(C), if C is idle, you will listen echo tone and C will ring. You can talk with the people hooks off C. Now, you press '**' keys, listening confirm tone, in 10 seconds, you dial:

'0' , talk with C and don't hold B

‘1’ , retrieve B and don’t hold C

‘2’ , talk with B and C alternatively

‘3’ , implement 3PTY

‘4’ , only talk with C and hold B

‘5’ , only talk with C and clear B

‘6’ , only talk with B and hold C

‘7’ , only talk with B and clear C

NOTE: While calling another user, you can press ‘’ keys to talk with B again.**

5. CW (Call Waiting)

Suppose you (POTS A) are talking with an external user (B), another external user(C) calls you, now, C will listen echo tone and you will listen waiting tone, you can:

1. Do nothing, the call will be cleared after 1 minute.
2. Press ‘**’ keys, listening confirm tone, in 10 seconds, you can dial:
   ‘0’, clear the new call
   ‘1’, talk with C and end the conversation with B
   ‘2’, talk with C and hold B, subsequent operation is same as 3PTY

Suppose you (POTS A) are talking with another POTS B, an external user(C) calls you, now, C will listen echo tone and you and B will all listen waiting tone, you or B can:

1. Do nothing , the call will be cleared after 1 minute.
2. Press ‘**’ keys to talk with C, the other will listen confirm tone.

Specifications

U interface:	
Standard	ITU-T G.961,ETR 080, ANSI T1.601
Line Coding	2B1Q
Startup Link Time	
Cold start Warm start	Typically 3 seconds Typically 110ms
Termination Resistance	135 Ω
Transmission Range	> 5.5km
Connector	RJ45
S/T interface:	
Standard	ITU-T I.430
Line Coding	AMI code
Termination Resistance	100 Ω or 50 Ω selectable
Power Feeding	42V
Bus connection	point-to-point, short passive bus, and extended passive bus
Transmission Range	>100m
Connector	RJ45
POTS interface:	
Power Feeding	48V
Local Dial Tone	-10±2dBm0
Ringing Signal	40Vrms / 25Hz sine wave
Local Frequency	400Hz sine wave
AC/DC adapter	
Input	190 ~ 240VAC,50/60Hz
Output	45V DC，230mA

Local tone	
Dial tone	continuous
Busy tone	0.35s ON，0.35s OFF repetitive
Ring back Tone	1s ON，4s OFF repetitive
Confirmation Tone	100ms ON，50ms OFF, repetitive for 3 times
Signal tone	
Warning Tone	0.35s ON,0.35s OFF, repetitive for 3 times
Internal call Ringing signal	1s ON, 2s OFF repetitive
External call Ringing signal	1s ON, 4s OFF repetitive
Environmental and Safety	
Working temperature	0℃～ + 45℃
Working Humidity	0～95% Non-Condensing
Storage temperature	- 40℃～ + 75℃
EMC	Comply with CISPR 22
Safety	Comply with EN60950

FAQ

1、No dial tone

The dial tone is generated by NT1+ itself, so, even if the U-interface not activated, you can listen dial tone while you hook off an analog phone. Additionally, the NT1+ can only support one analog phone or one ISDN phone in case of restricted power, you can check if the local power exists, if the remote power supply jump is set to support one ISDN phone or one analog phone is hooked off.

2、Able to listen dial tone, but it can't stop while a digit pressed

If the dial mode is set to DTMF.

3、Unable to call out

If the U-interface is activated;

if the A/μ law is coincidence;

if outgoing restriction is set

4、No ring while a incoming call arrived

First, process an internal call to check if the phone can ring;

Check if the A/μ law is coincidence;

Reset the MSN or SUB, the MSN must be coincidence with the PSTN;
Clear the MSN and SUB;

Check if incoming restriction is set

5、No caller ID

If the phone can ring;
If the current mode NT1+ supporting is supported by the CID displayer;
If you have request the CLIP service

6、Caller ID abnormal, the number is wrong

NT1+ supports SUB, it'll attach the SUB to the user number.

7、Caller ID normal, but the date and time is wrong

Complete an outgoing call, the internal clock of NT1+ will be updated;
The LT doesn't support the transfer of date and time

8、Unable to use ISDN phone while local power not provided

Refer to page 2，remote power feeding selection

9、Unable to transfer external call, unable to establish three party conference

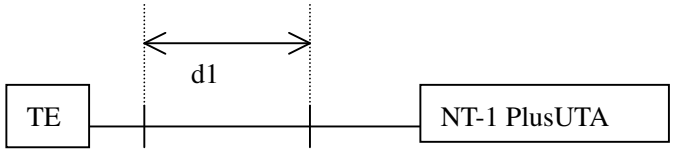
If you have requested these supplementary services;

These services need '**' key , if there is no '**' key or the '**' key is not standard, you can tap the hook or dial two '*' to substitute

Appendix: Bus of ISDN BRI S/T-interface

1. Point to point configuration

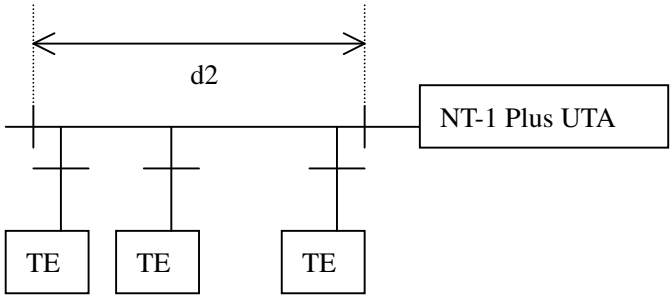
In this case, only one TE(or TA) can be accessed to the NT1 plus.



d1 can be as long as 1km(determined by the type of the wire),

100Ω resistance must be set in the TE.

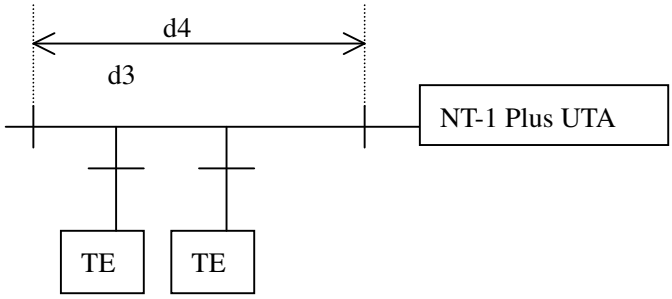
2.Short passive bus configuration



d2 can be as long as 200m(determined by the type of the wire),TE can be accessed at any point of the wire,NT1 plus can be placed at any point of the

wire.8 TEs can be accessed, the 100Ω resistance must be set in only one of them.

3. Extended passive bus configuration



d4 is about 100~1000m(determined by the type of the wire),d3 is the distance between two TEs, it can't be longer than 25~50m.The terminal resistance must set in only one of the TEs.

4. Length of the connected wire

In the case of point to multi-points, the length of the standard ISDN wire which connects TE to bus can't be longer than 10m.

5. Polarity

For the case of point to point configuration, the polarity of the 2 wires of the pair switching circuit(node 3,4,5,6) can be reverse.

For the case of point to multi-points configuration, the polarity of the 2 wires of the pair switching circuit(from TE to NT1 plus) must keep intact.

6.Accessible number

When the wire which connects TE to the bus is 10m long standard ISDN BRI wire, 8 Tes/TAs along the short passive bus or 4 TEs/TAs along the extended passive bus must be accessed to the bus.